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Subject:	Application Serial No.: 10/679,238 Filed: October 3, 2003 Applicant: William Kimbrell, Jr. Title: CHEMICAL MODIFICATION OF HYDROLIZABLE POLYMER-CONTAINING TEXTILE ARTICLES Attorney Docket: 2992C	**Date:**	May 25, 2006
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USPTO Customer No. 25280 Case No. 2992C

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Application of: William C. Kimbrell, Jr.
Serial Number: 10/679,238
Filed: October 3, 2003
For: **CHEMICAL MODIFICATION OF HYDROLIZABLE POLYMER-CONTAINING TEXTILE ARTICLES**
Group Art Unit: 1751
Examiner: Kumar, Preeti

BRIEF ON APPEAL UNDER 37 CFR 1.192

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

CERTIFICATE OF FACSIMILE TRANSMISSION UNDER 37 C.F.R. § 1.8(d)

I hereby certify that this correspondence is being transmitted by facsimile to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, at (571) 273-8300.

Date: May 25, 2006
Signature: Melody Towery
Name: Melody Towery

Sir:

The following Appeal Brief is submitted pursuant to the Notice of Appeal filed on or about March 28, 2006, from the Final Office Action dated November 28, 2005.

I. REAL PARTY IN INTEREST

The above-referenced application is the subject of an assignment to Milliken & Company, located at 920 Milliken Road, Spartanburg, South Carolina, which is the real party in interest.

II. RELATED APPEALS & INTERFERENCES

A Notice of Appeal (dated March 29, 2006) was also filed for Patent Application Serial Number 10/678,715.

III. STATUS OF CLAIMS

Claims 92, 97 – 102 and 104 – 109 have been rejected and are the subject of this Appeal.

IV. STATUS OF AMENDMENTS

Amendments were made after the Final Office Action. The amendments were entered.

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V. SUMMARY OF INVENTION

The subject application is directed to substituted hydrolizable polymers which are incorporated into textile articles for reducing pilling tendency.

Claim 92 is directed to a substituted hydrolizable polymer wherein the substitute is a branched chain amine selected from the group consisting of aliphatic amines, alkyl amines, and aliphatic substituted amines. The branched chain amine contains between 8 and 14 carbon atoms. The substituted hydrolizable polymer is incorporated into a textile article. The features of claim 92 are described, for example, in the specification on page 4 (lines 13-16), page 7 (lines 4-7) and page 10 (lines 4-8 and 11).

Claim 97 is directed to the polymer described in claim 92 wherein the amine is a polyamine. The features of claim 97 are described, for example, in the specification on page 10 (lines 4-8).

Claim 98 is directed to the polymer described in claim 92 wherein the amine is a diamine. The features of claim 98 are described, for example, in the specification on page 10 (lines 4-8).

Claim 99 is directed to the polymer described in claim 92 wherein the amine has a molecular weight that varies by less than about 42 atomic units. The features of claim 99 are described, for example, in the specification on page 10 (lines 14-16).

Claim 100 is directed to the polymer described in claim 99 wherein the amine has substantially the same molecular weight both before and after chemical reaction with the polymer. The features of claim 100 are described, for example, in the specification on page 10 (lines 14-16).

Claim 101 is directed to the polymer of claim 92 wherein the polymer is selected from the group consisting of polyester, wool, polylactic acid, and combinations thereof. The features of claim 101 are described, for example, in the specification on page 8 (lines 17-20).

Claim 102 is directed to the polymer of claim 101 wherein the polymer is selected from the group consisting of polyethylene terephthalate, polytriphenylene terephthalate, polybutylene terephthalate, and combinations thereof. The features of claim 102 are described, for example, in the specification on page 8 (lines 17-20).

Claim 104 is directed to the article of claim 92 wherein the article is selected from the group consisting of fibers, yarns, fabrics, films, and combinations thereof. The features of claim 104 are described, for example, in the specification on page 4 (line 16) and page 8 (lines 4-6).

Claim 105 is directed to the article of claim 104 wherein the article is a fabric and the fabric is incorporated into an article of apparel. The features of claim 105 are described, for example, in the specification on page 13 (lines 17-19) and page 18 (lines 7-11).

Claim 106 is directed to the article of claim 104 wherein the article is a fabric and the fabric is incorporated into an article of bedding. The features of claim 106 are described, for example, in the specification on page 13 (lines 17-19) and page 18 (lines 7-11).

Claim 107 is directed to the article of claim 104 wherein the article is a fabric and the fabric is incorporated into an article of residential upholstery. The features of claim 107 are described, for example, in the specification on page 13 (lines 17-19) and page 18 (lines 7-11).

Claim 108 is directed to the article of claim 104 wherein the article is a fabric and the fabric is incorporated into an article of commercial upholstery. The features of claim 108 are described, for example, in the specification on page 13 (lines 17-19) and page 18 (lines 7-11).

Claim 109 is directed to the article of claim 104 wherein the article is a fabric and the fabric is incorporated into an article of automotive upholstery. The features of claim 109 are described, for example, in the specification on page 13 (lines 17-19) and page 18 (lines 7-11).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 92, 97 – 102 and 104 – 109 stand rejected under 35 USC 103(a) as being unpatentable over Farmer (US Patent No. 4,103,051) in view of Krogh et al. (US Patent No. 6,169,064).

VII. ARGUMENT

Claims 92, 97 – 102 and 104 – 109 stand rejected under 35 USC 103(a) as being unpatentable over Farmer (US Patent No. 4,103,051) in view of Krogh et al. (US Patent No. 6,169,064).

Office Arguments (see Office Action dated 6/14/05)

The Office submits that Farmer teaches treating polyester fibers with a polymeric composition comprising an aliphatic amine having at least 10 carbon atoms, the concentration of the amine being between about 0.5% and 10% based on the dry weight of the textile for use in the reduction of the pilling tendency of textiles (Abstract).

Specifically regarding claims 101-109, the Office contends that Farmer teaches polyester fibers which can be used alone or with other natural or synthetic fibers. These other fibers include regenerated cellulosic fibers such as viscose rayon and other synthetic polymeric fibers such as polyamide, polyacrylic and similar fibers. The fibers may be in the form of filaments, staple yarns, or fabrics. See col. 2, lines 5-20. The Office notes that Farmer does not use the terminology "upholstery," however, one of ordinary skill in the art would be aware of the knowledge that the same fibers taught by Farmer may be used in various types of upholstery. The Office also notes that although Farmer does not specifically state that the polyester is selected from polyethylene terephthalate, it is well-known and accepted in the art that polyester is also a common name for polyethylene terephthalate.

Specifically regarding claims 92-100, the Office contends that Farmer teaches that aliphatic amine advantageously contains between about 10 and 25 carbon atoms and preferably between about 12 and 21 carbon atoms. Fatty amines are preferred, particularly diamines. The amine generally is dissolved or suspended in water or an organic solvent prior to the treatment of the textile. The proportion of the amine based on the dry weight of the textile is between about 0.5% and 10% and preferably between about 1% and 5%. In order to provide the before mentioned about of amine on the textile, the treating admixture will generally contain from about

0.01 to about 20 weight percent of the amine. The textile may be treated with the amine utilizing conventional application techniques such as padding, dipping, spraying, etc. Also, exhaustion techniques may be employed such as by adding the amine to a dye bath in a dyeing cycle. In example II, the Office submits that Farmer teaches that it is advantageous that the treatment be performed at a temperature between about 200 degrees and 400 degrees F for a period between about 1 and 60 minutes. Other chemicals may be applied to the textile simultaneously or sequentially of the amine. For example, chemicals may be employed with enhance the physical characteristics of the textile such as durable press reactants, e.g., textile resins or vinyl monomers with dual functionality and catalysts therefore, as well as soil release polymers, hand builders, softeners, emulsifying or wetting agents and the like (col. 2, lines 20-25).

The Office notes that "Farmer does not teach applying branched chain amine selected from the group consisting of isodecyloxypropyl-1,3-diaminopropane, isododecyloxypropyl-1,3-diaminopropane and isotridecyloxypropyl-1,3-diaminopropane as recited by the instant claims" (page 4 of Office Action dated 6/14/05).

With regard to the second reference, the Office submits that Krogh et al. teach surfactant compositions wherein the surfactant is robust and capable of imparting surfactant properties to a wide range of compositions. Suitable ether amine or diamine precursors for use in the surfactant include, without limitation, PA-7 (isopropyl-oxypropyl amine), PA-10 (isohexyloxypropyl amine), PA-1214 (a blended octyl/decyloxypropyl amine), PA-14 (decyloxypropyl amine), PA-17 (isotridecyloxypropyl amine) and DA-17 (isotridecyloxypropyl-1,3 diamino propane) (col .4, lines 25-35).

The Office further submits that in example 9 Krogh et al. teach a laundry detergent wherein the surfactant is heated to form a blend of amine ether acid salt surfactant and alkanolamide. This blend has a synergistic cleaning effect useful in removing soils from fabric. The surfactant has excellent liquidity. The liquidity is imparted by the ether linkages on the acids and, where applicable, on the amines. The potential for branching of the alkyl groups on the acids and amines further contributes to the excellent liquidity of the surfactant. See example 9, col. 11, ln. 40-col.12 where Krogh et al. illustrate that amine ether acid salts, and alkanolamides formed after heating the salts, form a synergistic detergent blend which is effective in removing soil from fabric.

Specifically, Krogh et al. teach that the surfactant was prepared by first treating monoethanolamine with sodium borohydride at 70°C for one hour. This solution was added to an equimolar amount of isodecyloxypropionic acid over a period of 15 minutes. The amine ether acid mixture was then heated to 155°C for approximately 1.5 hours. The end products of this reaction are approximately 38% monoethanolamine isodecyloxypropionic acid salt surfactant and 62% alkanolamide. Different surfactant/alkanolamide ratios result from different heating durations. For example, a 60% monoethanolamine isodecyloxypropionic acid salt surfactant and 40% alkanolamide blend composition results from heating the surfactant for approximately 30 minutes, while a 10% monoethanolamine isodecyloxypropionic acid salt surfactant and 90% alkanolamide composition blend results from heating the composition approximately 4 hours. Five detergent compositions were prepared using 96.6% water and 0.40% of the monoethanolamine isodecyloxypropionic acid salt surfactant/alkanolamide blend. Krogh et al. teach that over 45% of the soil was removed by the detergent composition including 38% monoethanolamine isodecyloxypropionic acid salt surfactant and 62% alkanolamide. The optimal exemplary detergent composition was found to be an efficacious laundry detergent.

The Office believes that it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the diaminopropane taught by Farmer, to arrive at a process for using the recited branch chain amine, because Krogh et al. teach that the isodecylopropylamine surfactant prepared from ether amine or diamine precursors including (isopropyl-oxypropyl amine), (isohexyloxypropyl amine), (decyloxypropyl amine), (isotridecyloxypropyl amine) and (isotridecyloxypropyl-1,3 diamino propane) results in a superior surfactant that is an efficacious laundry detergent with favorable liquidity and dispersion properties. The Office cites Example 6 and Example 9 and col.2, lines 30-40 of Krogh et al. as support of this assertion.

Furthermore, The Office believes that one of ordinary skill in the art would have been motivated to combine the teachings of Krogh et al. with that of Farmer since Farmer teaches a process for chemically modifying a hydrolizable polymer-containing textile article to improve resistance to pilling by applying a diaminopropane in general.

Appellants Arguments

To establish *prima facie* obviousness of a claimed invention, there must be a reasonable expectation of success in making the Office's proposed modification or combination (MPEP § 2143.02). Case law states that "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Appellants respectfully submit that there is no reasonable expectation of success that one of ordinary skill in the art would combine the Farmer and Krogh references and obtain a substituted hydrolizable polymer, wherein the substitute is a branched chain amine having between 8 and 14 carbon atoms, as recited in the single independent claim (claim 92).

It has been established previously that Farmer discloses a polymeric composition comprising aliphatic amines that are unbranched carbon chains (see Office Action dated 6/14/05, page 2). Krogh et al. teach an ether acid salt surfactant composition. The amine constituent of the surfactant may be selected from two types of amines: (a) ether amines, which may be branched and (b) fatty amines. See Abstract and col. 3, lines 41-48. Krogh et al. teach that the composition may be utilized in a laundry detergent composition (col. 11, lines 42-48).

With regard to the teachings of amines by Krogh et al., the fatty amines are similar to those taught by the Farmer reference (col. 3, lines 49-56). It has already been established that these amines differ greatly from those disclosed by the instant invention. The ether amines, on the other hand, may include isotridecyloxypropyl-1,3 diaminopropane (col. 4, lines 26-35). However, Appellants respectfully contend that since the Krogh et al. fail to provide any teaching as to the preference of one group of amines over the other, it is unclear to Appellants how one of ordinary skill in the art would be motivated to choose an ether amine over a fatty amine, since Krogh et al. teach both, and since Krogh et al. fail to offer any suggestion or motivation for choosing one group over the other.

As further support for this argument, in looking to the Examples provided by the Krogh reference, the single example which may be considered to be textile related does not even utilize an ether amine in the formulation. Rather, Example 9 utilizes monoalkanolamide, which is a fatty amine, in the laundry detergent formulation (see also col. 4, lines 36-47). How then would one of ordinary skill in the art be led to choose a branched ether amine and react it with the surface of a polymer-containing textile substrate to obtain a substituted hydrolyzable polymer wherein the substitute is a branched chain amine? Appellants respectfully submit that such motivation and expectation of success is not provide by the combination of references.

Example 6, which is also cited by the Office in support of its argument, is directed to a composition for use as a roof coating surfactant. See, for example, Krogh et al. at column 5, lines 50-52 where it states, "Specific examples of suitable amine ether acid salt surfactants for use in the roof coating surfactant are identified in each of the following Examples 1 – 6."

Furthermore, even if one were able, without undue experimentation, to choose an ether amine rather than a fatty amine from the teachings of Krogh et al., it is unclear how one would combine the amine with the teachings of Farmer to obtain a substituted hydrolyzable polymer wherein the substitute is a branched chain amine, since Farmer also teaches the use of fatty, unbranched amines. To the contrary, Appellants respectfully submit that it is more likely that by combining the Farmer and Krogh references, as suggested by the Office, one of ordinary skill in the art would be led to choose a fatty amine, since that is one consistent element taught by both references.

Thus, Appellants respectfully contend that the teachings of Krogh et al. in combination with Farmer do not lead one of ordinary skill in the art to provide a substituted hydrolizable polymer, wherein the substitute is a branched chain amine selected from the group consisting of aliphatic amines, alkyl amines, and aliphatic substituted cyclic amines, wherein the branched chain amine contains between 8 and 14 carbon atoms, and wherein the polymer is incorporated into a textile article, as currently claimed by Appellants.

Accordingly, Appellants respectfully submit that this rejection lacks a *prima facie* showing of obviousness, since there is no reasonable expectation of success in making the Office's proposed modification or combination as required by MPEP § 2143.02 and as set forth in case law.

Reversal of this rejection is earnestly requested.

VIII. CLAIMS APPENDIX

Claims 1-91 (cancelled)

92. A substituted hydrolyzable polymer, wherein the substitute is a branched chain amine selected from the group consisting of aliphatic amines, alkyl amines, and aliphatic substituted cyclic amines, wherein the branched chain amine contains between 8 and 14 carbon atoms, and wherein the polymer is incorporated into a textile article.

Claims 93 – 96 (cancelled)

97. The polymer of claim 92, wherein the amine is a polyamine.

98. The polymer of claim 92, wherein the amine is a diamine.

99. The polymer of Claim 92, wherein the amine has a molecular weight that varies by less than about 42 atomic units.

100. The amine of Claim 99, wherein the amine has substantially the same molecular weight both before and after chemical reaction with the polymer.

101. The polymer of Claim 92, wherein the polymer is selected from the group consisting of polyester, wool, polylactic acid, and combinations thereof.

102. The polymer of Claim 101, wherein the polyester is selected from the group consisting of polyethylene terephthalate, polytriphenylene terephthalate, polybutylene terephthalate, and combinations thereof.

Claim 103 (cancelled)

104. The article of claim 92, wherein the article is selected from the group consisting of fibers, yarns, fabrics, films, and combinations thereof.

105. The textile article of claim 104, wherein the article is a fabric and said fabric is incorporated into an article of apparel.

106. The textile article of claim 104, wherein the article is a fabric and said fabric is incorporated into an article of bedding.

107. The textile article of claim 104, wherein the article is a fabric and said fabric forms an article of residential upholstery.

108. The textile article of claim 104, wherein the article is a fabric and said fabric forms an article of commercial upholstery.

109. The textile article of claim 104, wherein the article is a fabric and said fabric forms an article of automotive upholstery.

IX. EVIDENCE APPENDIX

NONE.

X. RELATED PROCEEDINGS APPENDIX

NONE.

CONCLUSION

For the reasons set forth above, Appellants respectfully urge that the obviousness rejection of Claims 92, 97 – 102 and 104 – 109 is improper. Reversal of these rejections in this Appeal is hereby requested.

A copy of pending Claims 92, 97 – 102 and 104 – 109 is attached as an Appendix hereto.

The Commissioner is hereby authorized to charge the Appeal Brief fee of $500.00 to Deposit Account No. 04-0500. The Commissioner is also authorized to charge any additional fees that may be required, or credit any over-payment, to Deposit Account No. 04-0500.

Respectfully submitted,

May 25, 2006

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